UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/512,090	02/11/2005	Hee-Yong Lee	P26228	7911

7055 7590 07/07/2008

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER
ROGERS, JAMES WILLIAM

ART UNIT	PAPER NUMBER
1618	

NOTIFICATION DATE	DELIVERY MODE
07/07/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary	Application No.	Applicant(s)	
	10/512,090	LEE ET AL.	
	Examiner	Art Unit	
	JAMES W. ROGERS	1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-8,10-14,16 and 17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-8,10-14,16 and 17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/15/2008 has been entered.

Applicants amendments to the claims filed 04/15/2008 have been entered; applicants have amended claims 1,2,5,6,7,16 and 17 and cancelled claims 3,9,15 and 18-20.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7-8,10-14 and 16-17 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically the examiner could not find support within the specification for the new limitation found within claim 7 which states that the mixture is suspended in a **non-aqueous solution**.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2,4-8,10-12,14 and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Scott et al. (WO 01/28524 A1, cited previously). Regarding the new limitation within claim 7 that the mixture is obtained in a non-aqueous solution, as noted above this new limitation is considered new matter and thus the examiner applied the Scott reference to what material was enabled for the suspension, which was simply a solution. If applicants can show support for the new limitation the examiner will withdraw the rejection below over claim 7 and all its dependent claims.

Scott teaches sustained release microspheres and the method to produce them, the microspheres are comprised of a macromolecule (including therapeutic proteins), a water soluble polymer, and preferably a complexing agent (including sulfated dextran, heparin and chondroitin), the microparticle could further be coated by compounds such as fatty acids and lipids. See pag 1 lin 1-pag 15 lin 21, pag 19 lin 26-pag 26 lin 15, pag 28 lin 6-pag 30 lin 4 and claims 1-3,8-9 and 16-23. Regarding the new limitation within claim 1 that states the sulfated polysaccharide and protein are encapsulated within a matrix of hydrophobic material, since Scott teaches the same hydrophobic compounds such as fatty acids to coat the microparticle as applicants, the examiner considers the limitation met. Regarding the new limitations within claims 1 and 7 that the pH of the

mixture of proteins and sulfated polysaccharide is lower than the isoelectric point of the protein, since the sulfated polysaccharides and proteins of Scott are within the scope of applicants claimed invention it is inherent that the combination of the protein and sulfated polysacharide will have the same isoelectric point which is lower than just the protein alone. Regarding the limitations in claim 4 and 10, the sulfated polysaccharides used in the examples are within applicants claimed range. See examples. Regarding claims 7 and 2 Scott teaches making the microparticles by mixing the ingredients (drug, water-soluble polymer and complexing agent) in an aqueous solution and then collecting the microparticles by centrifuging.

Claims 1-2,4-8,10-14and 16-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Straub et al. (US 6,932,983 B1).

Straub teaches porous drug matrices and the methods of manufacturing, preferably the matrix is in the from of a microparticle. The matrix could incorporate numerous drugs including therapeutically useful proteins which themselves could be encapsulated by a pegylated phospholipid. See abstract, col 2 lin 66-67. The matrix itself was comprised of excipients (preferably in amounts less than 80%) including hydrophilic polymers such as dextran sulfate, sugars (including preferably mannitol and lactose, which as defined by applicants are protein stabilizers) and wetting agents which included stearic acid, wax and sorbitan fatty acid esters such as TWEEN (meeting applicant's claimed hydrophobic material). See col 7 lin 4-5,col 8 lin 25-col 9 lin 32. Regarding the new limitations within claims 1 and 7 that the pH of the mixture of proteins and sulfated polysaccharide is lower than the isoelectric point of the protein,

since the sulfated polysaccharides and proteins of Staub are within the scope of applicants claimed invention it is inherent that the combination of the protein and sulfated polysacharide will have the same isoelectric point which is lower than just the protein alone. The porous drug matrix was made by dissolving a drug in a low volatile solvent, adding a pore forming agent with the drug agent to form an emulsion, suspension or second solution and removing the solvent preferably by spray drying. The excipients which include the hydrophilic polymers, sugars and wetting agents described above can be added to the drug solution, the pore forming agent or both during production. See abstract, col 8 lin 36-38 and col 11 lin 49-col 13 lin 12.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-2,4-8,10-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott et al. (WO 01/28524 A1).

Scott is disclosed above. While Scott discloses a method to remove liquid form the macromolecule polymer mixture the patent is silent within the detailed description and examples on removing the liquid by spray/freeze drying. However it is disclosed within the background of the invention that many techniques are routinely used to make microparticles from synthetic and natural polymers including spray drying. Thus it would have been prima fascia obvious to the skilled artisan that spray drying could be used to dry the microparticles of the Scott invention. From the disclosure within the background

information spray drying was an already well-known and routine technique to dry particles, thus the limitation is obviously met by the disclosure.

Claims 1-2,4-8,10-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott et al. (WO 01/28524 A1) in view of Straub et al. (US 6,932,983 B1). It is noted by the examiner that this rejection is only made to address the limitation discussed above that was deemed to be "new matter", however if applicants can show that the new limitation is supported within the specification it would be obvious for the reasons disclosed below.

Scott is disclosed above. Scott is silent on forming the microspheres described therein in a non-aqueous solution. Staub is disclosed above. Staub is used primarily for the disclosure within that it was already well known in the art at the time of applicants claimed invention to form microparticles in a non-aqueous environment. One of ordinary skill in the art at the time of applicants claimed invention would have a reasonable expectation of success in using the methods to make microparticles disclosed within Staub and substitute them for the methods described in Scott because both references pertain to the same field of endeavor, drug loaded microparticles. Thus the methods described in both references could be assumed by one of ordinary skill in the art to be interchangeable since they produce the same type of product. Thus the claimed invention would have been *prima facie* obvious since all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions and the

combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claims 1-2,5-8,11-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards et al. (US 5,985,309). As noted above by the examiner if applicants can show support for the new limitation that the preparation could be done in a non-aqueous solution the examiner will withdraw the rejections over claim 7 and all its dependent claims.

Edwards discloses micronized particles for inhalation, the particles incorporate a surfactant and/or hydrophobic complex of a positively or negatively charged therapeutic agent (including proteins) in combination with a charged molecule of opposite charge, a self described complex forming material (including dextran-sulfate). See abstract, col 11 lin 63-15 and col 26 lin 10-19. Edwards also discloses that the particle material can be manufactured from fatty acids, the surfactants included phospholipids and fatty acids and other excipients such as sugars (including lactose) could also be included in the composition. See col 5 lin 50-col 7 lin 64. Edwards further describes various methods to produce the particles. See col 8 lin 6-col 9 lin 35.

Claims 1-2,4-8,10-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards et al. (US 5,985,309) in view of Straub et al. (US 6,932,983 B1). It is noted by the examiner that this rejection is only made to address the limitation discussed above that was deemed to be “new matter”, however if applicants can show

that the new limitation is not new matter the limitation would still be obvious for the reasons disclosed below.

Edwards is disclosed above. Edwards is silent on forming the particles described therein in a non-aqueous solution. Staub is disclosed above. Staub is used primarily for the disclosure within that it was already well known in the art at the time of applicants claimed invention to form microparticles in a non-aqueous environment. One of ordinary skill in the art at the time of applicants claimed invention would have a reasonable expectation of success in using the methods to make microparticles disclosed within Staub and substitute them for the methods described in Edwards because both references pertain to the same field of endeavor, drug loaded microparticles. Thus the methods described in both references could be assumed by one of ordinary skill in the art to be interchangeable since they produce the same type of product. Thus the claimed invention would have been *prima facie* obvious since all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Conclusion

No claims are allowed. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James W. Rogers, Ph.D. whose telephone number is (571) 272-7838. The examiner can normally be reached on 9:30-6:00, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Hartley can be reached on (571) 272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael G. Hartley/

Supervisory Patent Examiner, Art Unit 1618